

AMENDMENT

(under Article 34)
(Translation)

To : Examiner of the Patent Office

1 Identification of the International Application
PCT/JP03/15757

2 Applicant

Name : Matsushita Electric Industrial Co., Ltd.

Address : 1006, Oaza-Kadoma, Kadoma-shi, Osaka,
571-8501 JAPAN

Country of nationality : Japan

Country of residence : Japan

3 Agent

Name : (7243) Patent Attorney, ISHII Kazuo (seal)

Address : Kitahama-Yamamoto Building, 3-6,
Kitahama 2-chome, Chuo-ku, Osaka-shi,
Osaka 541-0041 Japan

4 Item to be Amended Claims

5 Subject Matter of Amendment

As per the attached sheets, where

(1) claims 2 to 4 are deleted, and the features thereof
are incorporated into claim 1;

(2) claims 5 to 12 are amended so as to depend on claim 1.

6 List of Attached Documents

(1) Claims, Pages 51 to 54

REPLY
(Translation)

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2-chome, Chuo-ku, Osaka-shi, Osaka 541-0041
Japan

4 Date of Notification 03. 8. 2004

5 Subject matter of Reply

In Written Opinion dated August 3, 2004, there is written an opinion out that claims 1 to 3, 5 to 7, 10, 12, 14 and 15 have neither novelty nor an inventive step.

In response to such opinion, claim 4, whose novelty and inventive step are acknowledged, is incorporated, together with claims 2 and 3, into claim 1 in AMENDMENT submitted on the same day as this Reply.

Also, in order to be consistent with this amendment, claims 5 to 12 are amended so as to depend on claim 1.

Therefore, we would like to request an affirmative International Preliminary Examination Report to be prepared with respect to the novelty, the inventiveness, and the industrial applicability of all the claims of this application.

CLAIMS

1. An electrochemical device having an electrode plate assembly that comprises: (a) at least one first electrode; (b) at least one second electrode; and (c) a separator interposed between the first electrode and the second electrode, wherein said electrode plate assembly includes a PTC device.

2. The electrochemical device in accordance with claim 1, wherein said first electrode (a) comprises a first current collector sheet having a conductive area and an insulating area and at least one first electrode mixture layer carried thereon, and

 said second electrode (b) comprises a second current collector sheet having a conductive area and an insulating area and at least one second electrode mixture layer carried thereon.

3. The electrochemical device in accordance with claim 1 or 2, wherein said electrode plate assembly is a layered-type electrode plate assembly obtained by layering said first electrode, said second electrode and said separator.

4. The electrochemical device in accordance with claim 3, wherein the conductive area of said first current collector sheet is connected to a first terminal on a first side face of said layered-type electrode plate assembly.

the conductive area of said second current collector sheet is connected to a second terminal on a second side face of said layered-type electrode plate assembly, the insulating area of said first current collector sheet is positioned on said second side face, and the insulating area of said second current collector sheet is positioned on said first side face.

5. The electrochemical device in accordance with claim 3 or 4, wherein said PTC device is shaped like a sheet.

6. The electrochemical device in accordance with any of claims 3 to 5, wherein said PTC device is positioned on said first side face or said second side face.

7. The electrochemical device in accordance with any of claims 3 to 5, wherein said PTC device is positioned in parallel with said first electrode, said second electrode and said separator in said layered-type electrode plate assembly.

8. The electrochemical device in accordance with claim 3, wherein the insulating area of said first current collector sheet and the insulating area of said second current collector sheet are positioned on the side faces of said layered-type electrode plate assembly other than said first side face and said second side face.

9. The electrochemical device in accordance with claim 3, wherein said layered-type electrode plate assembly has a side face on which the insulating area of said first current collector sheet and/or the insulating area of said

second current collector sheet are/is positioned, other than said first side face and said second side face.

10. The electrochemical device in accordance with claim 3, wherein said first side face and said second side face are positioned on opposite sides of said layered-type electrode plate assembly.

11. The electrochemical device in accordance with claim 3, wherein a first insulating material portion is provided between said first terminal and said first side face for insulating said first terminal from said second electrode, and a second insulating material portion is provided between said second terminal and said second side face for insulating said second terminal from said first electrode.

12. The electrochemical device in accordance with claim 1 or 2, wherein said electrode plate assembly is a wound-type electrode plate assembly obtained by layering and winding said first electrode, said second electrode and said separator.

13. The electrochemical device in accordance with claim 12, wherein the conductive area of said first current collector sheet is connected to a first terminal on a first bottom face of said wound-type electrode plate assembly, the conductive area of said second current collector sheet is connected to a second terminal on a second bottom face of said wound-type electrode plate assembly, the insulating area of said first current collector sheet is positioned on

said second bottom face, and the insulating area of said second current collector sheet is positioned on said first bottom face.

14. The electrochemical device in accordance with claim 12 or 13, wherein said PTC device is shaped like a flat plate or a round plate.

15. The electrochemical device in accordance with any of claims 12 to 14, wherein said PTC device is positioned on said first bottom face or said second bottom face.

16. The electrochemical device in accordance with claim 12, wherein a first insulating material portion is provided between said first terminal and said first bottom face for insulating said first terminal from said second electrode, and a second insulating material portion is provided between said second terminal and said second bottom face for insulating said second terminal from said first electrode.